

What is claimed is:

1. A washing machine, comprising:

a washing machine casing;

5 an outer tub disposed in the casing, for containing water therein;

an inner tub rotatably disposed in the outer tub, for containing laundry therein;

an induction motor for generating a rotational force; and

a rotation transmission means for transmitting a rotational force of the
10 induction motor to the inner tub with a rotational speed decelerated from a rotational speed of the induction motor in laundering operation, and with a rotational speed identical to the rotational speed of the induction motor in dehydrating operation.

15 2. The washing machine of claim 1, wherein the rotation transmission means includes:

a sun gear rotated by the rotational force of the induction motor;

a ring gear arranged to have a certain interval from an outer circumference of the sun gear;

20 a planetary gear meshed with the outer circumference of the sun gear and an inner circumference of the ring gear;

a rotary shaft connected to the ring gear and fixed to the inner tub to transmit the rotational force of the ring gear to the inner tub; and

a clutching device for selectively transmitting the rotational force of the induction motor only to the sun gear or to the sun gear and the ring gear simultaneously.

5 3. The washing machine of claim 2, wherein the clutching device includes:

 a first spline shaft formed on a circumference of a connecting shaft for connecting the sun gear with the induction motor;

 a second spline shaft extended from a side of the ring gear toward the
10 first spline shaft;

 a clutch movably disposed between the first spline shaft and the second spline shaft and selectively meshed only with the first spline shaft or with the first spline shaft and the second spline shaft simultaneously; and

 a clutch driving unit for moving the clutch.

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 4. The washing machine of claim 3, wherein the clutch driving unit includes:

 a solenoid for moving the clutch in a certain direction when an external power supply is applied thereto; and

20 a return spring for returning the clutch into an initial position thereof when the external power supply to the solenoid is cut off.

 5. The washing machine of claim 1, wherein the induction motor

includes:

a stator; and

a rotor disposed to have a certain air gap from an outer circumference of the stator, for generating a rotational force by mutual electromagnetic operation
5 with the stator.

6. The washing machine of claim 5, wherein the inner tub is rotated co-axially with a rotational center of the rotor.

10 7. The washing machine of claim 1, wherein the rotation transmission means includes:

a sun gear rotated by the rotational force of the induction motor;

a ring gear arranged to have a certain interval from an outer circumference of the sun gear;

15 a planetary gear meshed with the outer circumference of the sun gear and an inner circumference of the ring gear;

a planetary carrier connected to the planetary gear to be rotated by revolution of the planetary gear;

20 a rotary shaft connected to the planetary carrier and fixed to the inner tub to transmit the rotational force of the planetary carrier to the inner tub; and

a clutching device for selectively transmitting the rotational force of the induction motor only to the sun gear or to the sun gear and the ring gear simultaneously.

8. The washing machine of claim 7, wherein the clutching device includes:

a first spline shaft formed on a circumference of a connecting shaft for
5 connecting the sun gear with the induction motor;

a second spline shaft extended from a side of the ring gear toward the first spline shaft;

a clutch movably disposed between the first spline shaft and the second spline shaft and selectively meshed only with the first spline shaft or with the
10 first spline shaft and the second spline shaft simultaneously; and

a clutch driving unit for moving the clutch.

9. The washing machine of claim 8, wherein the clutch driving unit includes:

15 a solenoid for moving the clutch in a certain direction when external power supply is applied thereto; and

a return spring for returning the clutch into an initial position thereof when the external power supply to the solenoid is cut off.

20 10. The washing machine of claim 7, further comprising:

a speed adjusting device for controlling a rotational speed of the ring gear to adjust a rotational speed of the rotary shaft in laundering operation of the washing machine.

11. The washing machine of claim 10, wherein the speed adjusting device includes:

a band wound around an outer circumference of the ring gear; and

5 a band driving unit disposed at a side of the band to provide tension to the band, for selectively adjusting a frictional force between an inner circumference of the band and the outer circumference of the ring gear.

12. The washing machine of claim 11, wherein the band driving unit
10 includes:

a solenoid fixed to both ends of the band to apply a force for making both ends of the band approach to each other when an external power supply is applied thereto; and

a return spring for returning the band into an initial state thereof when
15 the external power supply to the solenoid is cut off.

13. A washing machine, comprising:

a washing machine casing;

an outer tub disposed in the casing, for containing water therein;

20 an inner tub rotatably disposed in the outer tub, for containing laundry therein;

an induction motor for generating a rotational force;

a pulsator disposed in the inner tub to perform agitating operation of the

water and the laundry contained in the inner tub while being rotated; and

a rotation transmission means arranged between the inner tub and the induction motor, for transmitting a rotational force of the induction motor to the inner tub and the pulsator so that the inner tub and the pulsator are rotated in the opposite direction to each other with a rotational speed decelerated from a rotational speed of the induction motor in laundering operation, and for transmitting a rotational force of the induction motor to the inner tub and the pulsator so that the inner tub and the pulsator are rotated in the identical direction to each other with a rotational speed identical to the rotational speed of the induction motor in dehydrating operation.

14. The washing machine of claim 13, wherein the rotation transmission means includes:

- a sun gear rotated by the rotational force of the induction motor;
- 15 a ring gear arranged to have a certain interval with an outer circumference of the sun gear;
- a planetary gear meshed with the outer circumference of the sun gear and an inner circumference of the ring gear;
- a planetary carrier connected to the planetary gear to be rotated by
- 20 revolution of the planetary gear;
- a hollow-shaped first rotary shaft connected to the ring gear and fixed to the inner tub to transmit the rotational force of the ring gear to the inner tub;
- a second rotary shaft rotatably disposed inside the first rotary shaft,

connected to the planetary carrier and fixed to the pulsator in order to transmit a rotational force of the planetary carrier to the pulsator; and

a clutching device for selectively transmitting the rotational force of the induction motor only to the sun gear or to the sun gear and the ring gear
5 simultaneously.

15. The washing machine of claim 14, wherein the clutching device includes:

a first spline shaft formed on a circumference of a connecting shaft for
10 connecting the sun gear with the induction motor;

a second spline shaft extended from a side of the ring gear toward the first spline shaft;

a clutch movably disposed between the first spline shaft and the second spline shaft and selectively meshed only with the first spline shaft or with the
15 first spline shaft and the second spline shaft simultaneously; and

a clutch driving unit for moving the clutch.

16. The washing machine of claim 15, wherein the clutch driving unit includes:

20 a solenoid for moving the clutch in a certain direction when external power supply is applied thereto; and

a return spring for returning the clutch into an initial position when the external power supply to the solenoid is cut off.

17. The washing machine of claim 14, further comprising a speed adjusting device for controlling a rotational speed of the ring gear to adjust rotational speeds of the first and second rotary shafts in laundering operation of
5 the washing machine.

18. The washing machine of claim 17, wherein the speed adjusting device includes:

a band wound around an outer circumference of the ring gear; and
10 a band driving unit disposed at a side of the band to provide tension to the band, for selectively adjusting a frictional force between an inner circumference of the band and the outer circumference of the ring gear.

19. The washing machine of claim 13, wherein the induction motor
15 includes:

a stator; and

a rotor disposed to have a certain air gap from an outer circumference of the stator, for generating a rotational force by mutual electromagnetic operation with the stator.

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20. The washing machine of claim 19, wherein the inner tub and the pulsator are rotated co-axially with a rotational center of the rotor.